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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,004	01/17/2002	Anthony C. Zuppero	22122878-10	9133

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EXAMINER	
DIAMOND, ALAN D	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/052,004	ZUPPERO ET AL.	
	Examiner	Art Unit	
	Alan Diamond	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *9-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01062003, 04012003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-8 and 27-29 (i.e., Group II) in the reply filed on July 9, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 9-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 9, 2004.

Claim Objections

3. Claims 5, 7, 8, and 27 are objected to because of the following informalities: In claim 5, at line 2, the word "a" should be inserted after "is". In claim 7, at line 2, the word "include" should be changed to "includes". In claim 8, at line 3, the word "a" should be inserted after "leave". In claim 27, at line 3, the word "an" should be inserted after "into". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 is indefinite because "the semiconductor" at lines 3-4 lacks positive antecedent support in claim 1. It is suggested that claim 27 be amended so as to depend from claim 2.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-5, 7, 8, and 27-29 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lee, U.S. Patent 3,925,235.

With respect to claims 1, 2, 4, and 7, Lee teaches a method for the conversion of chemical energy to light energy (i.e., electromagnetic radiation), comprising carrying out an exothermic chemical reaction, such as the oxidation of CO and H_2, on the surface of a semiconductor catalyst so as to inject electrons and holes into the conduction and valence bands of the semiconductor; and then emitting light from the semiconductor by

electron-hole recombination in the semiconductor (see col. 1, line 54 through col. 2, line 40; and the Examples at cols. 4-5). It is the Examiner's position that the instantly claimed coupling, creating, collecting, and converting steps inherently occur in Lee's process .

With respect to claim 3, the semiconductor can have a p-n junction, i.e., a diode junction (see col. 3, lines 42-67).

With respect to claim 5, it is the Examiner's position that Lee's device is a light emitting diode.

With respect to claim 8, Lee's reactants enter and exhaust products leave a vicinity of the semiconductor catalyst surface (see Figure 1).

With respect to claims 27-29, it is the Examiner's position that an inverted population is inherently obtained in Lee's process, and energy is extracted from the inverted population as said electromagnetic radiation. It is the Examiner's position that there inherently is stimulated emission to extract the electromagnetic radiation.

Since Lee teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

In addition, the presently claimed coupling, creating, collecting, and converting steps, and the presently claimed inverted population, would obviously have been present once Lee's method is performed. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

9. Claims 1-3, 7, 8, and 27 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nienhaus et al, "Direct detection of electron-hole pairs generated by chemical reactions on metal surfaces," Surface Science, (2000), pages 335-342. Nienhaus et al published on January 20, 2000. Provisional application 60/262,331, having a filing date of January 17, 2001, fully supports instant claims 1-3, 7, 8, and 27. Accordingly, said claims have a priority date of January 17, 2001. Thus, said January 20, 2000 publication date is a 102(a) date with respect to said claims.

Nienhaus et al teaches a method wherein current (i.e., instant energy) is generated by exothermic chemical reaction on metal surfaces (see abstract). Chemically created hot electrons (excited carriers) travel ballistically through a metal film, traverse a Schottky barrier (junction) and are detected as chemicurrent in the diode (see abstract). The reaction can be, for example, chemisoprtion of molecular oxygen on Ag (see abstract). It is the Examiner's position that the instantly claimed coupling, creating, collecting, and converting steps inherently occur in Nienhaus et al's process.

With respect to claim 27, it is the Examiner's position that an inverted population is inherently obtained in Nienhaus et al's process.

Since Nienhaus et al teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

In addition, the presently claimed coupling, creating, collecting, and converting steps, and the presently claimed inverted population, would obviously have been present once Nienhaus et al's method is performed. Note In re Best, 195 USPQ at 433,

footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,114,620. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of generating electricity in the claims of said patent inherently carries out the instant method for generating energy.

12. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,218,608. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of generating electromagnetic energy in the claim of said patent inherently carries out the instant method for generating energy.

13. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 27-74 of U.S. Patent No. 6,268,560. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of generating electricity in the claims of said patent inherently carries out the instant method for generating energy.

14. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,327,859. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of moving an object in the claims of said patent inherently carries out the instant method for generating energy.

15. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,649,823. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of extracting energy in the claims of said patent inherently carries out the instant method for generating energy.

16. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,678,305. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of stimulating emission of radiation in the claims of said patent inherently carries out the instant method for generating energy.

17. Claims 1-8 and 27-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,700,056. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of generating energy in the claims of said patent inherently carries out the instant method for generating energy.

18. Claims 1-8 and 27-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 09/682,363. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of generating energy in the claims of said copending application inherently carries out the instant method for generating energy.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

19. Claims 1-8 and 27-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/218,706. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method for creating hot atoms in the claims of said copending application inherently carries out the instant method for generating energy.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

20. Claims 1-8 and 27-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 20-30 of copending Application No. 10/185,086. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of energizing a quantum well in the claims of said copending application inherently carries out the instant method for generating energy.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

21. Claims 1-8 and 27-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 65-97, 102-130, and 153-165 of copending Application No. 09/631,463. Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of converting adsorbate reaction energy in to power, and the method of stimulating reactions in the claims of said copending application inherently carries out the instant method for generating energy.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

22. Claims 1-8 and 27-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32-50, 52-54, 56-89, and 92 of copending Application No. 10/625,801. Although the conflicting claims are not identical, they are not patentably distinct from each other because the

method of producing electrical energy in the claims of said copending application inherently carries out the instant method for generating energy.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Comments

23. Provisional application 60/262,331, having a filing date of Jan. 17, 2001, fully supports instant claims 1-8 and 27-29. Accordingly, said claims have a priority date of Jan. 17, 2001. US Patent 6,114,620, which has the same inventive entity as the instant application, cannot be used as prior art against said claims since said patent has a publication date of Sept. 5, 2000, which is not a 102(b) date.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent documents 3,694,770, 3,925,235, 4,045,359, 4,407,705, 5,048,042, 6,222,116, 2001/0018923, 2002/0017827, US 2002/0196825, and 2003/0000570 are hereby made of record.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond
Primary Examiner
Art Unit 1753

Alan Diamond
September 15, 2004